IN THE CLAIMS:

Please amend the claims as follows:

4. (Three Times Amended) The system of claim 1 wherein said cytoplasmic extract is obtained from a cell line selected from the group consisting of HeLa cells and a T cell line.

9. (Four Times Amended) The system of claim 1 wherein said cytoplasmic extract is selected from the group consisting of:

(a) a cytoplasmic extract which contains polyadenylate competitor RNA;

(b) a cytoplasmic extract which contains a material that sequesters proteins that bind polyadenylate;

(c) a cytoplasmic extract which contains a proteinase that inactivates proteins that bind to polyadenylate; and

(d) a cytoplasmic extract which contains an agent that prevents the interaction between polyadenylate and an endogenous macromolecule that binds to polyadenylate.

10. (Three Times Amended) The system of claim 9 wherein the material that sequesters proteins that bind polyadenylate is selected from the group consisting of:

(a) antibodies to proteins that bind polyadenylate;

(b) polyadenylate; and

(c) a combination of antibodies to proteins that bind polyadenylate, and polyadenylate.

15. (Three Times Amended) The system of claim 14 wherein said labeled target 3' polyadenylated messenger RNA sequence is labeled with a moiety selected from the group

consisting of a fluorescent moiety, a visible moiety, a radioactive moiety, a ligand, and a combination of fluorescent and quenching moieties.

21. (Four Times Amended) A method for identifying an agent capable of modulating the stability of a target 3' polyadenylated messenger RNA sequence comprising

(a) providing the system of claim 1;

(b) introducing said agent into said system;

(c) determining the extent of deadenylation and degradation of said target 3' polyadenylated messenger RNA sequence; and

(d) identifying an agent able to modulate the extent of deadenylation and degradation as capable of modulating the stability of said target 3' polyadenylated messenger RNA sequence.

23. (Twice Amended) The method of claim 21 wherein said source of ATP is exogenous.

26. (Three Times Amended) The method of claim 25 wherein said labeled target 3' polyadenylated messenger RNA sequence is labeled with a moiety selected from the group consisting of a fluorescent moiety, a visible moiety, a radioactive moiety, a ligand, and a combination of fluorescent and quenching moieties.

27. (Four Times Amended) The method for claim 21 wherein said monitoring the extent of deadenylation and degradation of said target 3' polyadenylated messenger RNA sequence comprises determining the extent of degradation of said labeled target 3' polyadenylated messenger RNA.

33. (Four Times Amended) A method for identifying an agent capable of modulating the stability of a target 3' polyadenylated messenger RNA sequence in the presence of an exogenously added RNA stability modifier comprising

(a) providing the system of claim 1;

(b) introducing said RNA stability modifier into said system;

(c) introducing said agent into said system;

(d) determining the extent of deadenylation and degradation of said 3' polyadenylated messenger RNA sequence; and

(e) identifying an agent able to modulate the extent of deadenylation and degradation as capable of modulating the stability of said target 3' polyadenylated messenger RNA sequence in the presence of said exogenously added RNA stability modifier.

35. (Twice Amended) The method of claim 33, wherein said source of ATP is exogenous.

48. (Three Times Amended) A method for identifying an agent capable of modulating cell growth or cell differentiation in a mammal comprising determining the ability of said agent to modulate the stability of a preselected target 3' polyadenylated messenger RNA sequence known to be involved in the modulation of cell growth or differentiation in accordance with claim 19.

51. (Three Times Amended) A method for determining whether an endogenous molecule modulates deadenylation or degradation of a target RNA sequence comprising

(a) providing the system of claim 1 containing target 3'polyadenylated messenger RNA;

(b) introducing said endogenous molecule into said system; and

(c) monitoring the stability of said target 3' polyadenylated messenger RNA sequence in said system thereby determining whether said endogenous molecule is capable of modulating deadenylation and degradation.

55. (Three Times Amended) A method for determining whether an agent is capable of modulating the degradation of a target 3' polyadenylated messenger RNA sequence in the absence of deadenylation comprising

(a) providing a cytoplasmic extract supernatant from a 100,000 x g, 1 hour centrifugation isolated from eukaryotic cells or tissues, said extract depleted of activity of proteins that bind polyadenylate; a source of ATP; and an exogenous target 3' polyadenylated messenger RNA sequence;

(b) introducing said agent into said cytoplasmic extract; and

(c) monitoring the degradation of said target 3' polyadenylated messenger RNA sequence in said extract thereby determining whether said agent is capable of modulating said degradation.

56. (Amended) The method of claim 51 wherein the endogenous molecule capable of modulating deadenylation and degradation is an isolated molecule.